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Barren River District Hepatitis A Outbreak May 2001-March 2002

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Note: The format of the following article deviates somewhat from this publication's usual narrative style. The editors believe it is an outstanding example of an outbreak investigation in abstract form.

Background—The Barren River District Health Department (BRDHD) serves an eight county area in South Central Kentucky with a total population of 225,669. Bowling Green, with 50,000 residents, is the area's population and economic center. Beginning May 2001, the Barren River District (BRD) area experienced a significant increase in the number of reported hepatitis A cases. By March 2002, 79 cases had been reported, compared to 5 cases reported in 2000.

Notification—On May 21, 2001, an infection control practitioner from a local hospital notified the BRDHD Communicable Disease Team of a 5-year-old Warren County child symptomatic for viral hepatitis with Anti-HAV IgM positive lab confirmation. The child resided in a government subsidized apartment complex. As the course of this outbreak progressed, BRDHD received reports from infection control practitioners, private health care providers, and concerned citizens.

Methods—The *Reportable Disease Desk Reference* was utilized to define the case definition of acute hepatitis A. Public health interventions were determined in conjunction with Kentucky Division of Epidemiology and Health Planning consultants, *Red Book 2000, Control of Communicable Diseases Manual—17th Edition, Recommendations From Wisconsin Division of Health*, and Centers for Disease Control and Prevention (Division of Hepatitis). Case investigations were conducted utilizing the Kentucky Reportable Disease Form (EPID 200) and the Viral Hepatitis Case Report (CDC 53.1).

Initial case investigation began with a home visit identifying issues of poor hygiene, children incontinent of stool, numerous playmates, lack of parental supervision, low economic status, limited education, and

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transmission from asymptomatic children. These identified issues were factors in the transmission of disease and, consequently, churches (Vacation Bible School), preschool, kindergarten, after-school, childcare, and community-based programs that served this population were affected. Transmission from affected children to adult contacts ultimately resulted in the involvement of two food service workers. The combination of these occurrences resulted in a community-wide outbreak.

Control Measures

1. Case contacts meeting criteria for post-exposure prophylaxis (Immune Globulin) were identified, immediately counseled, and referred to private health care providers.
2. Immune Globulin was available for indigent contacts through the local health department.
3. Medical advisories were provided to affected groups (Vacation Bible Schools, childcare facilities, schools, apartment complex). These advisories included information regarding possible exposure, public health recommendations, preventive treatment, disease education, and prevention/control/exclusion measures.
4. Written case updates were frequently sent to health care practices to assist clinicians when evaluating clients for post-exposure prophylaxis. These updates included case's age, sex, infectious period, setting affected, and public health recommendations.
5. The BRDHD Environmental Service Department inspected affected facilities and provided education regarding prevention.

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Barren River District Hepatitis A Outbreak

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6. Kentucky Licensing and Regulation staff conducted inspections in an affected childcare facility in collaboration with BRDHD.

7. Hepatitis A education classes were provided for affected facilities, addressing signs and symptoms, transmission, and prevention/control.

8. Illness monitoring logs were utilized in affected childcare facilities to identify the need for exclusion of staff/attendees.

9. Community education was provided through media interviews and telephone consultations. Letters were sent to affected facilities, school superintendents, and after-school programs.

10. Consultation with CDC led to further options, which included viral sequence testing and a vaccine campaign for a targeted group.

11. 1,000 doses of hepatitis A vaccine were provided by the Kentucky Vaccine for Children (VFC) program. This vaccine was administered to children ages 2 - 6 years who attended daycare, preschool and headstart programs enrolling a high-risk population.

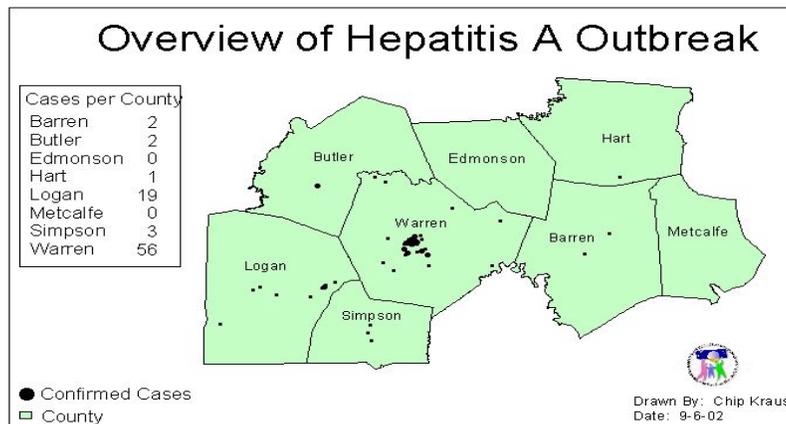
12. The BRDHD Geographic Information Specialist (GIS) plotted cases per county on an area map to demonstrate clusters of cases.

13. Clinics were held for co-workers of the two infected food service employees to administer Immune Globulin, screen for exclusion, and provide anti-HAV IgM testing and education.

14. One food service worker met Kentucky Department for Public Health criteria that warranted notification of the restaurant's patrons. As a result BRDHD held a clinic to provide Immune Globulin for approximately 2,300 of those patrons. The majority received service within a 3-day period.

Conclusion—79 anti-HAV IgM positive cases were identified. Case investigation findings substantiated the typical pattern of a community outbreak and are supported by viral sequencing results. When the combination of early diagnosis, prompt reporting, and follow through of public health recommendations occurred, the result was a decreased number of ill contacts. A failure of any one of these resulted in an increase of hepatitis A cases. Ultimately, the barriers and challenges present in this affected lower socio-economic group led to involvement of a dissimilar population, e.g., restaurant patrons.

This illness had significant community impact in regard to health complications, loss of wages through missed work, school absenteeism and incurred medical expenses. Loss of revenue became a concern when establishments such as childcare and food service were affected, thereby making public health interventions of utmost importance.



Barren River District Health Department Hepatitis A Outbreak Summary May 2001-March 2002

- I. Initial case (5-year-old).
- II. 20 cases documented and linked to the initial case and/or subsequent cases residing at apartment complex (9 children, 5 adolescents, 6 adults).
- III. 9 cases associated with a Logan County little league team picnic—no proven link with apartment complex (5 children, 4 adults).
- IV. 20 cases associated with 2 Warren County childcare centers, crossover of children/staff. Documented link with case from little league team picnic (8 children, 1 adolescent, 11 adults).
- V. 13 cases with suspected link to an infected* waitress at a Warren County restaurant (1 adolescent, 12 adults).
 - A. 6 identified a specific date of dining. No other identified risks.
 - B. 7 with a history of dining at establishment (exact date unknown)—incubation period consistent.
- VI. 2 cases with suspected link to an infected** food handler at another Warren County restaurant (2 adults).
 - A. 1-travels to endemic county.
 - B. 1- transports, empties, and cleans port-a-potties
 - C. 12-sources undetermined.

*Waitress had contact with infected siblings who attended Vacation Bible School with infected children from the apartment complex.

**Food handler had contact with infected child who attended childcare center.

Topics on Medical Defense Against Biological and Chemical Agents

“Advanced Topics on Medical Defense Against Biological and Chemical Agents” is the theme of a six-part, live satellite broadcast series which will begin airing November 6. The programs, offered by the United States Army Medical Research Institute of Infectious Diseases (USAMRIID), will be broadcast in two-hour segments approximately every other month through August 2003.



Smallpox virus.

The November 6 airing, “Smallpox: Recognition and Response,” will be followed by telecasts on January 8, March 5, May 21, July 9, and August 27. The series is open to civilian and military health care workers at no cost and is credited for CME, CNE, and CEU. All broadcasts will be from 1-3 p.m., EST, (90 minutes of instructional material, both live and recorded, followed by 30-minute live question and answer sessions).

Programs will be delivered via live satellite links (C and Ku band) and various video teleconferencing networks to the continental U.S., Hawaii, Alaska, Puerto Rico, and southern Canada. Registration information may be

obtained at <http://www.biomedtraining.org/index.htm>. This site also provides [webcast](#) registration for the USAMRIID series. As information becomes available regarding Kentucky broadcast sites, it will be listed on the KDPH Bioterrorism training website at http://publichealth.state.ky.us/bioterror_training_calendar.htm.

Smallpox Vaccination Clinic Guide

The *CDC Smallpox Response Plan and Guidelines* received an important addition to its smallpox preparedness efforts in late September—a comprehensive annex titled “Smallpox Vaccination Clinic Guide.” The new section—part of Version 3 of the *CDC Smallpox Response Plan and Guidelines*—describes the operational and logistical considerations associated with implementing a large-scale voluntary vaccination program in response to a confirmed smallpox outbreak. The annex provides details on all aspects of immunization clinic operations and staffing, and includes an example of a model smallpox vaccination clinic.

National Pharmaceutical Stockpile

Established by the Centers for Disease Control and Prevention (CDC) in 1999, the National Pharmaceutical Stockpile (NPS) evolved from the federal health agency’s recognition of the need for the United States to establish a lifesaving, highly mobile resource to respond to a national terrorist attack.

The NPS includes strategically placed caches of antibiotics, vaccines, antidotes, antitoxins, and other medical supplies that can be delivered anywhere in the U.S. within 12 hours. CDC will send agency personnel, in the form of an NPS Technical Advisory Response Unit, to assist state/local authorities, as requested, with the receipt, organization, repackaging, and distribution of NPS supplies. On September 11, 2001, 50 tons of medical supplies were delivered to New York City within seven hours of the attack on the World Trade Center. NPS also delivered supplies to several health departments during the anthrax attacks last fall

Since that time, the following enhancements have been made to the stockpile:

- ◆ Supplemental funds have been appropriated to expand the stockpile and to acquire additional antibiotics and pediatric-related supplies. Blast, burn, and trauma supplies have been added.
- ◆ The number of deployable “push packages” has been increased from eight to 12.
- ◆ The NPS program has increased the technical assistance it provides state and local emergency planners and has developed and disseminated a guidance document that serves as a reference tool so planning officials can prepare for receiving and distributing NPS materials. Additionally, NPS staff make site visits to assess state and local NPS preparedness plans and conduct training.
- ◆ The NPS program is now responsible for storing and transporting anthrax and smallpox vaccines, and has a plan to ensure the rapid shipment and distribution of the vaccines in the event of an emergency.

Smallpox Overview/October 2002

The Origin of Smallpox

Smallpox is a serious, highly contagious, and sometimes fatal infectious disease. There is no specific treatment for smallpox disease, and the only prevention is vaccination. The name is derived from the Latin word for "spotted" and refers to the raised bumps that appear on the face and body of an infected person.

Two clinical forms of smallpox have been described. Variola major is the severe form of smallpox, with a more extensive rash and higher fever. It is also the most common form of smallpox. There are four types of variola major smallpox: ordinary (the most frequent); modified (mild and occurring in previously vaccinated persons); flat; and hemorrhagic. Historically, variola major has a case-fatality rate of about 30%. However, flat and hemorrhagic smallpox, which are uncommon types of smallpox, are usually fatal. Hemorrhagic smallpox has a much shorter incubation period and is likely not to be initially recognized as smallpox when presenting to medical care. Smallpox vaccination also does not provide much protection, if any, against hemorrhagic smallpox.

Variola minor is a less common clinical presentation, and much less severe disease. (For example, historically, death rates from variola minor are 1% or less.)

Smallpox outbreaks have occurred from time to time for thousands of years, but the disease is now extinct after a successful worldwide vaccination program. The last case of smallpox in the United States was in 1949. The last naturally occurring case in the world was in Somalia in 1977. After the disease was eliminated from the world, routine vaccination against smallpox among the general public was stopped because it was no longer necessary for prevention.

The Disease

Smallpox is caused by the variola virus that emerged in human populations thousands of years ago. Humans are the only natural hosts of variola. Animals and insects do not carry or spread the variola virus. Except for laboratory stockpiles, the variola virus has been eliminated as a disease. However, in the aftermath of the events of September and October 2001, there is concern that the variola virus might be used as an agent of bioterrorism. For this reason, the U.S. Government is taking careful precautions to be ready to deal with smallpox outbreak.

Transmission

Smallpox can be caught through direct contact with someone infected with smallpox. Smallpox cannot be caught from animals or insects. Generally, direct and fairly prolonged face-to-face contact is required to spread smallpox from one person to another. In a terrorist attack, exposure to smallpox could occur by breathing airborne virus. A person who has been exposed to smallpox becomes infectious, or contagious, after a rash appears. After the appearance of a rash, the infected person is contagious until the last smallpox scab falls off.

"Smallpox— What Every Clinician Should Know"

A Centers for Disease Control and Prevention course offering CME credit for physicians, is available in CD format at https://www2.cdc.gov/nchstp_od/PIWeb/niporderform.asp. The course also may be viewed in the webcast at http://www.sph.unc.edu/about/webcasts/2001-12-13_smallpox/.

Emergency Privileging Hospital Standard

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) has created a new emergency privileging hospital standard that provides for the privileging of volunteer licensed independent practitioners (LIPs) during emergencies. Standard MS.5.14.4.1, which went into effect in July, allows the hospital CEO, medical staff president, or his/her designee to grant emergency privileges when the emergency management plan has been activated. It outlines acceptable sources of identification of volunteer LIPs, including a current license to practice, a current picture hospital I.D. accompanied by the LIPs license number, or verification of the volunteer practitioner's identity by a current hospital or medical staff member.

JCAHO says health care personnel responding during last year's Houston flood and the fall terrorist attacks identified a need for rapid access to clinicians to assist in meeting patient care demands in emergencies.

—For additional information, contact
Bob Wise at rawise@jcaho.org.

Smallpox Disease

Incubation Period	Exposure to the virus is followed by an incubation period during which people do not have any symptoms and may feel fine. This incubation period averages about 12 to 14 days, but can range from seven to 17 days. During this time, people are not contagious.
Initial Symptoms (Prodrome)	The first symptoms of smallpox include fever, malaise, head and body aches and sometimes vomiting. The fever is usually high, in the range of 101 to 104 degrees. At this time, people are usually too sick to carry on their normal activities. This is called the prodrome phase and may last for two to four days.
<p>Days 1-4</p> <p>Rash Distribution:</p> 	<p>A rash emerges first as small red spots on the tongue and in the mouth. These spots develop into sores that break open and spread large amounts of the virus into the mouth and throat. At this time, the person is the most contagious.</p> <p>Within 24 hours, a rash appears on the skin, starting on the face and then spreading to the arms and legs and then to the hands and feet. Usually the rash spreads to all parts of the body within 24 hours. As the rash appears, the fever usually falls and the person may start to feel better.</p> <p>By Day 3, the rash becomes raised bumps.</p> <p>By Day 4, the bumps fill with a thick, opaque fluid and often have a depression in the center that looks like a belly-button. (This is a major distinguishing characteristic of smallpox.)</p> <p>Fever often will rise again at this time and remain high until scabs form over the bumps.</p>
Days 5-10	Over the next five to 10 days, the bumps become “ pustules ” -- sharply raised, usually round and firm to the touch. They feel like there's a small round object under the skin. People often say it feels like there is a BB pellet embedded under the skin.
Days 11-14	The pustules begin to form a crust and then scab . By Day 14, most of the sores have scabbed over.
Days 15-21	The scabs begin to fall off, leaving marks on the skin that eventually become pitted scars . The person is contagious to others until all of the scabs have fallen off. Most scabs will fall off after three weeks.
After Day 21	Scabs have fallen off. Person is no longer contagious.

*For more information, visit or call the CDC public response hotline at:
(888) 246-2675 (English), (888) 246-2857 (Español), or (866) 874-2646 (TTY).
www.cdc.gov/smallpox*

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2002-2003 Influenza Update

The Centers for Disease Control and Prevention reports that from June through September 2002, influenza A(H1), A(H3N2), and B viruses circulated worldwide and the majority of viruses antigenically characterized are well matched to the components of the 2002-03 influenza vaccine.

The agency reiterated that the optimal time to receive influenza vaccine is October or November. It is recommended that persons at high risk, health care workers, household members of high risk persons, and children aged

6 months to <9 years who are receiving vaccine for the first time receive the vaccine beginning in October. This fall, the Advisory Committee on Immunization Practices (ACHIP) encourages children aged 6-23 months and their household contacts and out-of-home caretakers to be vaccinated beginning in October when feasible. Other healthy persons, including those 50-64 years of age, are recommended to seek vaccination beginning in November. Vaccination should continue into December and throughout the influenza season.

Vaccination is the primary means for reducing the impact of influenza.